IN THE CLAIMS

Please cancel claim 1.

Please add new claims 32-69 as follows.

12 ~~32~~. (New) A system for conditioning an input signal to produce a rectified and amplified output signal, the system comprising of:

a rectifier circuit with gain, the rectifier circuit with gain receiving an input signal and transmitting an analog output signal;

an analog-digital converter, the analog-digital converter configured to receive the analog output signal from the rectifier circuit with gain and transmitting a digital output signal based on the analog output signal; and

a selector control circuit, the selector control circuit receiving an output feedback from the analog-digital converter and transmitting a control signal to the rectifier circuit with gain.

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18 ~~33~~. (New) The system as in claim 12, wherein the rectifier circuit with gain comprises an inverting circuit and a non-inverting circuit.

19 ~~34~~. (New) The system as in claim 18, wherein the inverting circuit comprises an inverting amplifier, an input resistance and a feedback resistance circuit.

23 ~~35~~. (New) The system as in claim 18, wherein the inverting circuit inverts first portions of the input signal and amplifies the inverted first portions depending on a first selected gain level.

21 ~~36~~. (New) The system as in claim 18, wherein the non-inverting circuit comprises a non-inverting amplifier, a feedback resistance and an input resistance circuit.

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20 37. (New) The system as in claim 19, wherein the feedback resistance circuit comprises a plurality of first resistances selectively combinable to provide a plurality of gain levels.

24 38. (New) The system as in claim 18, wherein the non-inverting circuit transmits second portions of the input signals and amplifies the second portions depending on a second selected gain level.

22 39. (New) The system as in claim 21, wherein the input resistance circuit comprises a plurality of second resistances selectively combinable to provide a plurality of gain levels.

13 40. (New) The system as in claim 12, further comprising a plurality of solid state switching devices within the feedback resistance circuit and the input resistance circuit.

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14 41. (New) The system as in claim 13, wherein the resistances of the feedback resistance circuit and the input resistance circuit are selectively combinable by changing conductive states of the solid state switching devices.

15 42. (New) The system as in claim 14, comprising a control circuit coupled to the solid state switching devices, the control circuit applying control signals to the switching devices to place the switching devices in desired conductive states for combination of the resistances of the feedback and input resistances circuits.

16 43. (New) The system as in claim 15, wherein the input resistance of the inverting circuit is a fixed resistance.

17 44. (New) The system as in claim 15, wherein the feedback resistance of the non-inverting circuit is a fixed resistance.

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25 ~~45~~. (New) A method for rectifying and amplifying an input signal comprising the acts of:

applying the input signal to a rectifier circuit, the rectifier circuit having an inverting amplifier and a non-inverting amplifier to produce an amplified first output signal;

applying the amplified first output signal to a downstream circuit, wherein the downstream circuit provides a second output signal; and

applying the second output signal to a control circuit, wherein the control circuit transmits command signals to the rectifier circuit.

30 ~~46~~. (New) The method as in claim 25 ~~45~~, wherein the rectifier circuit comprises a selectable gain inverting amplifier and a selectable gain non-inverting amplifier.

26 ~~47~~. (New) The method as in claim 25 ~~45~~, wherein the inverting and non-inverting amplifiers comprise a plurality of gain levels defined by a plurality of components connectable to a feedback system to rectify and amplify portions of the input signal.

27 ~~48~~. (New) The method as in claim 26 ~~47~~, wherein the plurality of components comprises a plurality of resistances.

28 ~~49~~. (New) The method as in claim 27 ~~48~~, wherein the plurality of resistances are selectively connectable by a series of solid state switches.

29 ~~50~~. (New) The method as in claim 28 ~~49~~, wherein the series of solid state switches are configured so that the plurality of resistances are in parallel with one another.

31 ~~51~~. (New) The method as in claim 30 ~~46~~, wherein applying the input signal further comprises applying the input signal to the inverting amplifier.

32 ~~52~~. (New) A system for rectifying and amplifying an input signal comprising:

means for amplifying an input signal, including an inverting amplifier and a non-inverting amplifier configured to rectify and amplify the input signal to produce analog output signal;

means for converting the analog output signal to a digital output signal; and

means for commanding selection of a discrete gain level of the means for amplifying based upon the digital output signal.

33 ~~53~~. (New) The system as in claim 32 ~~52~~, wherein the means for amplifying is configured to provide at least three discrete gain levels.

34 ~~54~~. (New) The system as in claim 33 ~~53~~, wherein the inverting and non-inverting amplifiers comprise a plurality of gain levels defined by a plurality of components connectable to a feedback system to rectify and amplify portions of the input signal.

35 ~~55~~. (New) The system as in claim 34 ~~54~~, wherein the plurality of components comprises a plurality of resistances.

36 ~~56~~. (New) The system as in claim 35 ~~55~~, wherein the plurality of resistances are selectively connectable within the feedback system by a series of solid state switches.

37 ~~57~~. (New) The system as in claim 36 ~~56~~, wherein the series of solid state switches are configured so that the plurality of resistances are in parallel with one another.

38 ~~58~~. (New) The system as in claim 32 ~~52~~, wherein the series of solid state switches are configured so that the plurality of resistances are in series with one another.

1 ~~59~~. (New) A signal conversion circuit for rectifying and amplifying an input signal, the circuit comprising:

an inverting circuit including an inverting amplifier, an input resistance and a feedback resistance circuit, the inverting circuit inverting first portions of the input signal and amplifying the inverted first portions based upon a first selected gain level; and

a non-inverting circuit including a non-inverting amplifier, a feedback resistance and an input resistance circuit, the non-inverting circuit passing second portions of the input signals and amplifying the second portions based upon a second selected gain level.

2 ~~60~~. (New) The circuit of claim 1 ~~59~~, wherein the feedback resistance circuit comprises a plurality of first resistances selectively combinable to provide a plurality of gain levels.

3 ~~61~~. (New) The circuit of claim 1 ~~59~~, wherein the input resistance circuit comprises a plurality of second resistances selectively combinable to provide a plurality of gain levels.

4 ~~62~~. (New) The circuit of claim 1 ~~59~~, further comprising a plurality of solid state switching devices in the feedback resistance circuit and the input resistance circuit, and wherein a plurality of first resistances of the feedback resistance circuit and the input resistance circuit are selectively combinable by changing conductive states of the switching devices.

5 ~~63~~. (New) The circuit of claim 4 ~~62~~, further comprising a control circuit coupled to the solid state switching devices, the control circuit applying control signals to the switching devices to place the switching devices in desired conductive states for combination of the resistances of the feedback and input resistance circuits.

6 ~~64~~. (New) The circuit of claim 5 ~~63~~, wherein the control circuit monitors an output signal derived from signals amplified by the inverting circuit and the non-inverting circuit, and generates the control signals based upon the output signal.

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